

CLEAN VERSION - REPLACEMENT PAGESRELATED APPLICATIONS

This application is a continuation-in-part of my co-pending provisional patent application Serial No. 60/175,293, filed January 10, 2000, for Personnel Guidance and Location Control System (now expired), which is, in turn, a continuation of my co-pending U.S. a continuation-in-part of my co-pending U.S. patent application Serial No. 09/347,255, filed July 2, 1999, for Personnel Guidance and Location Control System, and which is, in turn, a continuation of my co-pending U.S. patent application Serial No. 08/741,619, filed October 30, 1996, for Personnel Guidance and Location Control System (now abandoned). This application is also related to and covers matter related to that presented in my co-pending U.S. utility patent application Serial No. 09/307,104, filed May 6, 1999, (now abandoned), and my provisional U.S. patent application Serial No. 60/084,591, filed May 7, 1998, (now expired), and U.S. utility patent application Serial No. 09/307,337, filed May 6, 1999, for Personnel Guidance and Location Control System.

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There are numerous floor mats which have been designed for presenting informational material on the upper surface thereof. One such floor mat is described in U.S. Patent No. 5,848,830, to Castle, et al and which even includes means for illumination thereof. This particular patent discloses the use of advertising or promotional material. Another mat capable of being used is disclosed in U.S. Patent No. 5,775,016 to Chien and which contains guidance material to an exit in case of an emergency or otherwise. U.S. Patent No. 5,637,378 to Hensler, et al also discloses a floor mat but which contains fluorescent borders. However, these borders are not designed as guidance and location control elements. Rather, they are designed to show the edges of the mat in the event of a power failure.

Other U.S. patents which disclose mats contain emergency personnel movement directions and include, for example, U.S. Patent No. 4,401,054 to Britt, et al; U.S. Patent No. 4,109,439, to Feasel; U.S. Patent No. 4,080,087 to Phillips; U.S. Patent No. 4,570,207 to Takahashi, et al; U.S. Patent No. 4,737,764 to Harrision; U.S. Patent No. 6,025,773 to Bresnan; U.S. Patent No. 5,791,114 to Mandel; U.S. Patent No. 4,620,816 to Kupfer.

The use of personnel guidance and control systems is well known and used for controlling the path of movement of a group of

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individuals in an activity. They are also frequently used for presenting entertainment or information to a pedestrian while waiting to reach a certain destination in advance of a line of these individuals. Generally, all of the conventional guidance and location control systems rely upon the use of movable standing

CLEAN VERSION - REPLACEMENT PAGESBRIEF DESCRIPTION OF THE DRAWINGS

Having thus described the invention in general terms, reference will now be made to the accompanying drawings in which:

Figure 1 is a schematic top plan view showing one form of personnel guidance and location control system of the present invention;

Figure 2 is a perspective view of one form of physical barrier which may be used with the personnel guidance and location control system of the present invention;

Figure 3 is a schematic top plan view similar to Figure 1, but showing the desired position of the physical barrier of Figure 2;

Figure 4 is a perspective view of one form of floor mat on floor covering which may be used in the present invention;

Figure 5 is a vertical sectional view taken essentially along line 5-5 of Figure 4;

Figure 6 is a fragmentary sectional view showing a modified form of mat construction in accordance with the present invention;

Figure 7 is a fragmentary vertical sectional view showing the application of informational material to an undersurface of the upper layer of the mat;

Figure 8 is a fragmentary top plan view showing the mat

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forming part of a guidance and location control system with guidance elements thereon and a message presented on the surface thereof;

Figure 9 is a fragmentary top plan view, similar to Figure 9, and showing a portion of a floor mat similarly forming part of a

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Referring to Figure 1, it can be observed that there are a plurality of pathway forming discrete edge elements as, for example, floor or ground mountable small discrete markers 20 which form a guide path 22 for a plurality of individuals waiting, for example, in a line. There is also an elongate end of the line element 24 which defines the end of that guide path 22. In addition, and if desired, footprints 26 may also be provided, as shown in the embodiment of Figure 1, to further outline the queuing arrangement for the group of individuals. In this particular embodiment, the guide pathway forming elements 10 and the end of the line element 24 are discrete components which are physically mounted to a floor surface, much in the manner as described in my co-pending U.S. patent application Serial No. 09/307,337, filed May 6, 1999.

The present invention thereby eliminates the need for ropes and poles as a conventional guidance and location control system and the problems attendant thereto. It should be understood in connection with the present invention that these guidance elements, including the small discrete elements 20, and the end of the line position element 24 could be physical elements which are physically applied to a floor including a ground surface or a similar substrate or mat 21, as, for example, by means of screws, nails,

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etc. Otherwise, it should also be understood that these elements may be imprinted on or otherwise applied to a surface of a mat, as hereinafter described in more detail.

Figure 1 also shows a destination 28 which may be, for example, a kiosk or a bank teller cage or the like. In this particular case then, the group of individuals would be waiting to reach that destination 28 in advance of the end of the line position.

It has been found in connection with the present invention that in many cases, people will attempt to avoid the markers, at least temporarily, to reach a selected position in the guide path when there are only a few individuals in the proximity thereof. This can be disruptive, particularly in restaurants and like facilities where other patrons may be carrying trays, etc. It has been found also in connection with the present invention that the use of a physical barrier requiring ropes and poles can also be helpful for this purpose, but these ropes and poles and like physical barriers do interfere with movement of people and can also present a hazard. Thus, while they tend to guide people, they also

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so that it may be fitted under a portion of a mat, particularly as shown in the embodiment of Figure 3. In this way, the physical barrier 30 may be held in a fixed position by means of the floor mat. Further, and for this purpose, the floor plate 32 may be of a relatively thin construction so that the floor plate will not cause a bulging or uplifting of the mats 26, as hereinafter described. In addition, a portion of the lower layer of the mat can be removed to accommodate the floor plate.

By further reference to Figure 3, it can be observed that the individual path defining elements 20 are physically mounted on individual mats 26 which are linear in shape and arcuately shaped mats 28. These mats may be abutted together or they may be affixed together in any desired orientation, in the manner as shown in our co-pending U.S. patent application Serial No. 09/307,337, filed May 6, 1999. For this purpose, the edges of the mats may be provided with interlocking sections so as to enable the mats to fit together in an interlocked arrangement.

The present invention also provides a plurality of embodiments of a unique floor mat 40 which carries the guidance and location control system thereon, as best shown in Figures 4-13 of the drawings. In this particular case, a floor mat 40 is comprised of a plurality of individual layers and may have imprinted or



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otherwise applied to the upper surface thereof a plurality of small discrete elements 42 defining a guide path 44, as shown in Figure 4. In addition, an advertisement section 36 may be imprinted on or otherwise applied to this mat 40. This mat essentially forms part of a guidance and location control system for guiding a group of individuals. Otherwise, it could be merely serve as a destination mat in which a party stands to accomplish a certain physical result.

By reference to Figure 5, it can be observed that the mat is a plural layer mat which may be die cut or otherwise formed. The mat 40 of the present invention comprises a fairly rigid substrate 50 which may be formed of a plastic material, such as a polycarbonate. Any of a number of well known polycarbonate materials may be operable for this purpose. Although the polycarbonates have been found to be most effective for the present invention, it is possible to use other moderately rigid plastics, such as polystyrene, and even some polyethylene blends. The fairly rigid layer 50 should be capable of providing a substantial degree of rigidity to the mat so that it cannot be folded. Moreover, it must present at least sufficient weight to preclude edges of the mat from curling, particularly when the mat is not necessarily interlocked with other related mats. It may be appreciated that

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curling of the mat, particularly at the edges, can present a hazard, such as a tripping hazard.

That polycarbonate material which is offered under the name and mark "LEXAN" is even most preferred, since it has a relatively scratch resistant top surface. Moreover, it is quite durable and even in relatively thin sections is not readily bendable. In addition, the LEXAN or other polycarbonate layer should have a relatively thin cross sectional thickness as hereinafter described in more detail.

Secured to the under surface of the polycarbonate layer 50 is a plastic layer 52 and preferably one formed of an acrylonitrile

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other plastic materials could be used in place of the polycarbonate and the acrylonitrile butadiene styrene material, as aforesaid.

Figure 6 illustrates an embodiment of the mat 64 which is comprised only of the acrylonitrile butadiene styrene layer 52 and the upper polycarbonate layer 50, as well as the thin adhesive layer 54. In this embodiment of Figure 6 as well as subsequent embodiments, like reference numerals will be used to represent like components which were described in the previous embodiments of the invention.

In the mat 64, the mat is provided with a slightly recessed section 68 having an information bearing section 70 inserted in the recess 68 as a type of insert. Moreover, this insert 70 can be frictionally fitted within the recess 68 or otherwise it can be permanently secured therein by means of an adhesive or cement. Although this type of presentation of material is effective, it is more preferable to use one of the subsequently described embodiments of the mats in accordance with the present invention.

Figure 7 represents a mat 74 which similarly carries the ABS layer 52 and the polycarbonate layer 50 secured by the adhesive layer 54. In this case, one or more message presenting layers 76 can be located on the underside of the polycarbonate layer 50 or on the upper surface of the acrylonitrile butadiene styrene layer 52.

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In this way, the advertising message is effectively located on the underside of the polycarbonate layer 50 and is carried through the layer to the upper surface which is generally transparent. In this way, the informational message carried by the substrate 76 will appear clearly through the upper surface of the polycarbonate layer 50. In addition, since the coating applied to the layer 50 is white, the message will appear against a white background.

The image which is to appear through the polycarbonate layer may also be applied through an ink printing on the undersurface of the polycarbonate. When the ink is dried, the adhesive is then applied and allows for the bonding or lamination between the ABS layer and the polycarbonate layer.

The informational message which is to be displayed at the upper surface of the laminated mat may suitably be applied to the underside of the polycarbonate layer 50, as best shown in Figure 10. Thus, suitable informational messages are applied to the undersurface of the polycarbonate layer 50 and above the upper surface of the ABS layer 52, as well as, in this case, above the adhesive layer 54. This informational material may adopt the form of ink printing on the underside of the polycarbonate layer 50 or it may adopt the form of thin substrates 80 applied to the underside of the polycarbonate layer 50, as shown. In either case,

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the message appears through the transparent polycarbonate layer 50.

If it is desired to cover the message which may be presented, such as that message 80, an applique 82 may be adhesively secured to the upper surface of the polycarbonate layer 50 directly over the message 80, as best shown in Figure 10 of the drawings. In this way, it is easily possible to alter the design which may appear on the surface of the mat or, for that matter, to alter the appearance of guide pathway forming members 84, as shown in Figure 8.

Figure 8 illustrates a plan view of one embodiment of a mat, such as that mat also shown in Figure 10, and which includes guide forming edge indicia 84 which may be in the nature of, for example, the distributor points for use in an automobile. In the event one desires to change the points to a different illustration as, for example, spark plugs 86, as shown in Figure 9, it is only necessary to apply an applique over the illustration of the points and to generate a design of a series of spark plugs. Thus, for example, if the institution in which the mat is used is having a sale on distributor points, they may wish to emphasize the points, as shown in Figure 8. If the sale item should change to spark plugs on the following day, they would feature the spark plug designs, as shown in Figure 9.

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Figures 11-13 illustrate an embodiment of a mat 90 having the polycarbonate layer 50 and the ABS layer 52 secured by the adhesive layer 54. In this embodiment, the polycarbonate layer is provided with openings 92, as shown in Figure 11, for receiving plugs 94 and which plugs 94 may contain on their upper surface an informational message to be presented. Otherwise, a plurality of these plugs 94 in combination may present a message. The plugs are sized to fit within the openings 92 and can be frictionally retained therein or otherwise they may be adhesively secured within the openings 92. The plugs, for example, may actually adopt the form of the guide path forming elements 84 or 86. In the event that the plugs are permanently secured within the openings 92, it is possible to change the message presented on the surface of the mat or the plugs by merely adhesively securing an applique 96 to the upper surface of each of the plugs, as best shown in Figure 13 of the drawings.

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A personnel guidance and location control system for guiding a group of walking pedestrian individuals into a line thereof and controlling movement thereof, said guidance and location control system comprising:

- a) a ground cover substrate for disposition on a ground surface;
- b) at least one end of line element associated with said cover substrate and in a fixed location thereon for defining an end of a line of the group of walking pedestrian individuals and representing a waiting location for the individual at the front end of the line so that the individuals may proceed to a destination in advance of the front end of the line in an orderly and succession manner;
- c) a plurality of small discrete path forming elements associated with said cover substrate in a fixed location thereon relative to the end of line element and extending from regions in proximity to opposite ends of the end of line element to define a pathway of movement for the group of pedestrian individuals;

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- d) means associated with said end of line element and small discrete path forming elements for locating same with the cover substrate, whereby the ground cover substrate and end of line element and small discrete path forming elements can be located on the ground surface presenting a desired pattern of movement to enable the orderly and controlled movement of a group of walking pedestrian individuals into one or more lines of same to a destination; and
- e) at least one upstanding guide post located in proximity to an edge of said ground cover substrate and at a region of the substrate when the pattern of movement changes direction and cooperating with the discrete path forming elements which also show a change of direction to alert the group of pedestrian individuals in the pathway of a potential change of direction of the pathway in advance of reaching that change of direction.



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The personnel guidance and location control system of Claim 1 further characterized in that the guide post comprises a plate and an upstanding member extending from said plate and located at the edge of said substrate for fixed location at a change of direction of the path forming elements on the substrate.

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The personnel guidance and location control system of Claim 2 further characterized in that said guide post is relatively light in weight and movable from one location to another.

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The personnel guidance and location control system of Claim 1 further characterized in that said guide post does not primarily serve as a physical barrier but is visually apparent to guide the pedestrian individuals.

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The personnel guidance and location control system of Claim 1 further characterized in that a means is associated with the underside of the end of line element and with the underside of the

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small discrete path forming elements for securing same to said ground cover substrate.

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A system for controlling movement and standing locations for a group of pedestrian individuals in an orderly fashion and presenting informational messages in connection therewith, said system comprising:

- a) a ground cover substrate for disposition on a ground surface;
- b) at least one end of line element associated with said cover substrate and in a fixed location thereon for defining an end of a line of the group of walking pedestrian individuals and representing a waiting location for the individual at the front end of the line so that the individuals may proceed to a destination in advance of the front end of the line in an orderly and successive manner;
- c) a plurality of small discrete path forming elements associated with said cover substrate in a fixed location thereon relative to the end of line element and extending from regions in proximity to opposite ends of the end of line element to define a pathway of movement for the group of pedestrian individuals;

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- d) a first informational message and a second informational message, said first informational message being located at said substrate and which is substitutable so that said second informational substrate may be readily and quickly substituted at said substrate for said first informational message so that only said second message is visibly presented;
- e) said substrate comprising a first layer of a relatively rigid material, which is generally transparent allowing an informational message to show therethrough and which provides sufficient weight to the substrate so that edges do not curl when disposed on a ground substrate, and a second layer of a relatively flexible material secured to said first layer and which aids in allowing the substrate to be rolled and also to be treated as a rigid mat.

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The system of Claim 6 further characterized in that said first information message is located at an underside of said first layer and under said generally transparent first layer so that said first informational message appears directly through said first layer.

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The system of Claim 6 further characterized in that the element representing a standing or waiting position is removable from said substrate so that a new element can be substituted therefor.

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The system of Claim 8 further characterized in that said element representing a standing or waiting position is fitted into a recess formed in the ground cover substrate for holding same.

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The system of Claim 7 further characterized in that the first informational message is ink printed on the underside of the first layer.

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The system of Claim 7 further characterized in that the first informational message is printed on a sheet material located at an underside of said first layer.

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The system of Claim 7 further characterized in that said second informational message can be substituted for said first informational message by applying an applique to said first substrate located over the first informational message.

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The system of Claim 6 further characterized in that said first layer is comprised of a polycarbonate material and said second layer is comprised of an acrylonitrile butadiene styrene co-polymer and where said first layer has a thickness of no greater than one-fourth inch and said second layer has a thickness of no greater than one-fourth inch.

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A personnel location and control system comprising at least one mat for guiding and locating a group of pedestrian individuals and also presenting an informational message to said pedestrian individuals during the movement of or standing at a location, said mat comprising:

- a) a ground cover substrate for disposition on a ground surface;
- b) said ground cover substrate being comprised of
  - 1) a first layer of a relatively rigid and generally transparent polycarbonate material;
  - 2) a relatively flexible second layer of an acrylonitrile butadiene styrene material secured to said first layer; and
  - 3) a bonding layer between said first and second layers to cause a bonding of the two to allow the substrate to be rolled or laid as a mat;
- c) a first informational message printed on the underside of the first layer in such manner that

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the message is observable by pedestrian individuals during movement or at standing locations; and

- d) a second informational message adapted for disposition over the first informational message to cover the first informational message.

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The system of Claim 15 further characterized in that a group of elements is associated with said ground cover substrate to define a pathway for guiding the movement of or a standing location for each of the pedestrian individuals.

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The system of Claim 16 further characterized in that said group of elements comprises a plurality of small discrete elements defining a pathway of movement for the pedestrian individuals and an elongate element defining an end of the line position for a person at the head of the line of pedestrian individuals.

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The system of Claim 15 further characterized in that said first informational message is located between said first layer and

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said second layer.

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A system for controlling movement and standing locations of pedestrian personnel and presenting informational messages in connection therewith, said system comprising:

- a) a ground cover substrate for disposition on a ground surface;
- b) said substrate comprising a first layer of a relatively rigid material, which is generally transparent allowing an informational message to show therethrough and which provides sufficient weight to the substrate so that edges do not curl when disposed on a ground substrate, and a second layer of a relatively flexible material secured to said first layer and which aids in allowing the substrate to be rolled and also to be treated as a rigid mat;
- c) at least one element associated with said ground cover substrate for representing a standing or waiting position for a pedestrian individual and in which an activity may take place; and
- d) a first informational message located at said substrate on an underside of said first layer so as

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to appear directly through said generally transparent first layer and which is substitutable so that a second informational message may be readily and quickly substituted at said substrate for said first informational message such that only said second message is visibly presented, said second informational message being substitutable for said first informational message by applying an applique to said substrate and located over said first informational message.

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The system for controlling movement and standing locations of pedestrian personnel and presenting informational messages in connection therewith of Claim 15 further characterized in that the second informational message is located on an applique which is secured to said substrate and which covers said first informational message.

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The system for controlling movement and standing locations of pedestrian personnel and presenting informational messages in connection therewith of Claim 22 further characterized in that the first and second layers each having a thickness of no greater than one-fourth inch.

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A system for controlling movement and standing locations of pedestrian personnel and presenting informational messages in connection therewith, said system comprising:

- a) a ground cover substrate for disposition on a ground surface;
- b) at least one element associated with said ground cover substrate for representing a standing or waiting position for a pedestrian individual and in which an activity may take place;
- c) a first informational message located at said substrate and which is substitutable so that a second informational substrate may be readily and quickly substituted at said substrate for said first informational message so that only said second message is visibly presented; and
- d) said substrate comprising a first layer of a relatively rigid polycarbonate material, which is generally transparent allowing an informational message to show therethrough and which provides sufficient weight to the

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substrate so that edges do not curl when disposed on a ground substrate, and a second layer of a relatively flexible material formed of an acrylonitrile butadiene styrene copolymer secured to said first layer and which aids in allowing the substrate to be rolled and also to be treated as a rigid mat.

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A method of controlling the locational movement of one or more pedestrian individuals on a ground cover substrate in a line of such individuals to an end of a line position and to a destination in advance of the end of the line position and simultaneously providing an informational message to said one or more pedestrian individuals, said method comprising:

- a) applying a ground cover substrate to a ground surface and having an upper surface thereon for walking disposition by said one or more pedestrian individuals;
- b) providing one or more small discrete path forming elements on said upper surface of said substrate in fixed positions therein to represent an end of a line position of the group of walking pedestrian individuals and representing a waiting location for the individual at the front end of the line so that the individuals may proceed to a destination in advance of the front end of the line in an orderly and succession manner;
- c) also providing a pathway of movement for the group of individuals by applying to said substrate a

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- plurality of small discrete path forming elements associated with said cover substrate in a fixed location thereon relative to the end of line element and extending from regions in proximity to opposite ends of the end of line element;
- d) presenting a desired movement pattern to enable the orderly and controlled movement of a group of pedestrian individuals into one or more lines of same to a destination by properly locating the end of line element and small discrete path forming elements on the ground surface; and
  - e) locating at least one upstanding guide post in proximity to an edge of said ground cover substrate, and which cooperates with the path forming elements to alert the pedestrian in the pathway of a potential change of orientation of the pathway in advance of reaching that change of orientation.